

#### REMARKS

This is in response to the Office Action dated September 21, 2005, in which Claims 1-6, 8-13, 15 and 16 were rejected under 35 U.S.C. 103(a). The rejection is respectfully traversed according to the following remarks, and it is respectfully submitted that all the pending claims are patentable.

#### Summary

In the Office Action, Claims 1-2, 5-6, 8-9, 13 and 15 were rejected as being unpatentable over Block in view of Cathey et al., Claims 3-4 and 10-12 were rejected in further view of Gehrke et al. or Croft et al., and Claim 16 was rejected in further view of Mizzi or Cargin, Jr. et al.. The rejection is respectfully traversed because:

1. **Modification** of Block by incorporating “transmitter LED” **renders intended purpose of Block unsatisfactory** – No suggestion or motivation to make the proposed modification. *In re Gordon*, 733, F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

In the Office Action, the Examiners rejected Claims 1-2, 5-6, 8-9, 13 and 15 under 35 U.S.C. 103(a) as being unpatentable over Block et al. in view of Cathey et al.. The Examiner acknowledges that Block differs from the claimed invention in that Block does not specifically disclose LEDs as transmitter. On the other hand, the Examiner indicated that it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate LED transmitters, as it is taught by Cathey, for the laser transmitters of Block to provide a wide radiated light distribution and to provide an inexpensive optical data communication system.

It is well known in the art that, in application, LED's are typically housed in a plastic bulb that concentrates the light in a particular direction. **Block** recognizes the convergent characteristics of LED transmitters and **specifically shows the undesirability of the precision in alignment of logic cards required by using LED transmitters** in col. 2, lines 5-13. Further in col. 5, lines 27-30, Block specifically teaches “*The semiconductor lasers emits radiation which emerges in a divergent beam, and spacing between logic cards 15a-15f is relatively close, thereby obviating the need for lenses or other optical devices.*”. Evidently, proposed modification by incorporating the LED transmitters render the intended purpose of

Block, that is, the divergent beam that eliminates the need of collimation or adjustment, unsatisfactory. Therefore, there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). The modification or combination proposed by the Examiner thus fails to meet with the basic requirement for a *prima facie* case of obviousness, and the rejections over Claims 1-2, 5-6, 8-9, 13 and 15 are respectfully traversed.

2. Both Block and Cathey et al. fail to teach the step (c) and (e) as claimed in Claims 1 and 8, respectfully – Obviousness cannot be established for combined reference fails to explicitly or implicitly show the claimed subject matters. *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

Block specifically limits “each logic card to **communicate only with the adjacent cards** on either side to minimize the transmission distance” (Abstract, col. 5, lines 22-23, Figs. 1, 2, and 4). As the communication can only be established with the adjacent cards, Block teaches away the optical connections between one and any of the circuit cards as claimed in Claims 1 and 8.

Cathey et al. discloses an optical data bus and an interfacing assembly with a plurality of lenses and mirrors to transmit light which allow “**adjacent devices or stations communicated by light from an LED**” (col. 6, lines 57-59). In addition, as shown in Figures 2 and 3, the optical pathways disclosed by Cathey et al. between the detector and the emitter are not solely through air, instead, a plurality of lenses are required for forming the optical ways.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claimed limitations. As the combined reference Block and Cathey fails to teach every element as claimed in Claims 1 and 8, the rejection over Claims 1-6 and 8-11 and 13 is respectfully traversed.

3. Block teaches away “standardized infrared communications scheme protocol” as claimed in Claims 3-4, 10-12 and 17 – The proposed combination is improper. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

As Block specifically requires the radiation emitted from the semiconductor laser to be divergent, Block teaches away the standardized infrared communications scheme protocol that requires a convergent infrared radiation between the transmitters and the receiver. Should one of ordinary skill in the art modify Block by incorporating the teaching of “standardized infrared communications scheme protocol” from any other reference, the intended purpose of eliminating collimation between the transmitter and the receiver is rendered unsatisfactory.

As Block teaches away “standardized infrared communications scheme protocol” by specifically requiring the convergent infrared radiation between transmitters and receivers, it is improper to combine Block with Cathey. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1993). In addition, as the proposed modification renders the intended purpose of Block to eliminate the collimation or adjustment unsatisfactory, there is lack of suggestion or motivation to make the proposed modification. *In re Gordon*, 733 Fed 900, 221 USPQ 1125 (Fed. Cir. 1984).

Rejection Over Claims 1-2, 5-6, 8-9, 13 and 15

Claims 1-2, 5-6, 8-9, 13 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al. (US Patent No: 4,850,044) in view of Cathey et al. (US Patent No.: 4,063,083)

The Examiner acknowledged that Block differs from the claimed invention in that Block does not specifically disclose LEDs as transmitters, but indicated that it is obvious for one of ordinary skill in the art to incorporate the LED transmitters disclosed by Cathey and Smith cited in the background section of Block.

As LED’s are typically housed in a plastic bulb to concentrate light in a particular direction, in order to eliminate the requirement of collimation and adjustment, Block particularly uses the semiconductor lasers which emit radiation in the form of divergent beams to avoid the LED transmitters (col. 5, lines 27-30).

Therefore, should one of ordinary skill in the art **modifies the primary reference, Block, by incorporating the LED transmitters** used in Cathey et al. (Cathey and Smith), **the collimation** (alignment) between the transmitters and receivers **cannot be eliminated**.

The modification as proposed thus renders the primary reference unsatisfactory for its intended purpose, and there is no suggestion or motivation for making such proposed modification or combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1993). Therefore, the Examiner fails to meet with the basic requirement of establishing a *prima facie* case of obviousness, and the rejection over Claims 1-2, 5-6, 8-9, 13 and 15 are respectfully traversed.

In addition to the LED transmitters, both Block and Cathey et al. also **fails to teach** the steps of “(c) ... the optical pathways forming a plurality of **independent optical connections between** said transmitter LED on **at least one of said circuit cards and** said receiver photodiode on **any one of said circuit cards**” as claimed in Claim 1 and “(e) **receiving the light by the photodiode formed on any of the circuit cards**, so as to receive the data carried by the light” as claimed in Claim 8.

In the Abstract, Block particularly discloses “**Each logic card communicates only with the adjacent cards on either side** to minimize the transmission distance”. Therefore, the only optical connections disclosed by Block are those between the adjacent logic cards only (Figures 1-4). As Block has specifically precluded the possibility of forming optical connections solely through air between one circuit card and any circuit cards, regardless what other references have disclosed, Block does not only fail to teach the steps (c) and (e) as claimed in Claims 1 and 8, respectively, but also teaches away such steps.

Cathey also limits the optical connection between the adjacent devices only by specifically teaching “a plurality of lenses and mirrors to transmit light which allow **“adjacent devices or stations communicated by light from an LED”** (col. 6, lines 57-59)”, also fails to teach, or even teaches away the subject matters of steps (c) and (e) of Claims 1 and 8, respectively. Further, the optical connections disclosed by Cathey et al. are not solely through air. Instead, a plurality of lenses is required for forming the optical ways which form the optical connections.

Therefore, Block and Cathey, individually or in combination, fail to teach every element as claimed in Claims 1 and 8. A *prima facie* case of obviousness is not established for the rejection over Claims 1-6, 8-11 and 13. *In re Kotzab*, 217 F.3d 1365, 1370, 55

USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Further, as both Block and Cathey teach away the optical connection sole through air between one and any other circuit cards, the modification or combination proposed by the Examiner is improper. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). The rejection over Claims 1-6 and 8-13 is thus issued without meeting at least two of three basic criteria to establish a *prima facie* case of obviousness. The Applicant thus respectfully requests the Examiner to withdraw such rejection and reconsider the patentability of Claims 1-6 and 8-13.

*Rejection Over Claims 3-4, and 10-11*

Claims 3-4 and 10-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al. in view of Cathey and in further view of Gehrke et al., or Croft et al..

It is well known in the art that one requirement to facilitate the standardized infrared communication scheme protocol includes the infrared transmission pulses in a cone that extends within a specific degree half angle off center. That is, the infrared transmission has to be converged within a certain degree. As the primary reference, Block, specifically teaches the semiconductor lasers emitting radiation which emerges in a **divergent beam** so as to eliminates the need for collimation or adjustment of the position of the logic cards, Block actually teaches away the claimed invention of "infrared communication scheme protocol" which requires the convergent beam rather than the divergent beam.

In other words, if one of ordinary skill in the art modifies Block by incorporating the infrared communication scheme protocol as claimed in Claims 3-4 and 10-11, Block has to replace the divergent semiconductor laser by light sources emitting divergent beams. As a result, collimation between the transmitters and receivers or the logic cards will be required, and the intended purpose of eliminating collimation of logic cards will not be satisfactory.

Accordingly, the primary reference Block teaches away the subject matter as claimed in Claims 3-4 and 10-11, and the proposed modification renders the primary reference Block unsatisfactory for its intended purpose, there is thus lack of suggestion or motivation for the

proposed modification or combination. The rejection over Claims 3-4 and 10-11 is thus respectfully traversed.

Further, as it is well known in the art that the standardized infrared communication scheme protocol operates in half-duplex mode. The reason is quite simple. **While transmitting, a device's receiver is blinded by the light of its own transmitter.** Because of this, full duplex communication is not feasible. The two devices that communicate simulate full duplex communication by quickly turning the link around.

Block discloses a plurality of logic cards 15 each having two pairs of transmitters and receivers (20a-f, 23a-f and 21a-f, 22a-f). Block does not teach or suggest any desirability of the standardized infrared communication scheme protocol. On the contrary, as shown in Figures 2, the receivers 22a-f and 23a-f appear operative to receive signals while the transmitters 20a-f and 21a-f on the same logic card are transmitting signals.

Therefore, unless there is any explicitly or implicitly evidence showing the desirability of using the standardized infrared communication scheme protocol of Block or any explicitly or implicitly evidence in Block showing the desirability of asynchronous activation of the semiconductor laser and the photodetector on the same board, there is lack of suggestion or motivation of a *prima facie* case of obviousness for Claims 3-4 and 10-11, the rejection is thus respectfully traversed.

Newly Added Claim

New Claim 17 is respectfully submitted to include the feature of "standardized infrared communication scheme protocol". Similar to Claims 3-4 and 10-11, the standardized infrared communication scheme protocol does not only require the transmission of light converged within a specific angle between the transmitter and the receiver, but also blinds off the receiver when the transmitter on the same device (board) is transmitting. In other words, the transmitters and receivers cannot operate simultaneously or synchronous for the standardized infrared communication scheme protocol.

Block, by specifically teaching the semiconductor laser to emit radiation being divergent, teaches away of the requirement of "transmission converged within a specific angle"; and consequently, teaches away the "standardized infrared communication scheme

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protocol" as claimed in Claim 17. In addition, Block (Figure 2) appears to disclose the receivers operative to receive signals while the transmitters on the same board is transmitting a signal. This further teaches away the "standardized infrared communication scheme protocol" which is not feasible for duplex communication.

Rejection Over Claim 16

Claim 16 was rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al. in view of Cathey et al. and in further view of Mizzi (US Patent No: 4,545,023), or Cargin, Jr. et al. (US Patent No:6,023,147).

As Claim 16 depends on the patentable Claim 15, Claim 16 is believed patentable.

In view of the forgoing, all the pending claims are believed patentable, and a notice of allowance is respectfully solicited. If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

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By: B. B. Brunda

Customer No.: 007663

Bruce B. Brunda  
Registration No. 28,497  
STETINA BRUNDA GARRED & BRUCKER  
75 Enterprise, Suite 250  
Aliso Viejo, California 92656  
Telephone: (949) 855-1246  
Fax: (949) 855-6371